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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/478,235	01/04/2000	ALI NAJIB SALEH	M-7165-3P	1418
33031	7590	03/17/2004	EXAMINER	
CAMPBELL STEPHENSON ASCOLESE, LLP 4807 SPICEWOOD SPRINGS RD. BLDG. 4, SUITE 201 AUSTIN, TX 78759			LEE, TIMOTHY L	
			ART UNIT	PAPER NUMBER
			2662	20
DATE MAILED: 03/17/2004				

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/478,235

**Applicant(s)**

SALEH, ALI NAJIB

**Examiner**

Timothy Lee

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8, 10-35 and 37-69 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-35 and 37-45 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 46-69 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-3, 46-48, and 54-57 are rejected under 35 U.S.C. 102(e) as being anticipated by Basso et al. (US 6,370,119).

3. Regarding claims 1, 46, and 54, Basso et al. discloses a method and system for determining the optimal path for routing a communication in a communication network (a method of finding a path in a network). See Abstract. Fig. 1 discloses a communications network with a plurality of nodes and a plurality of links (comprises a plurality of nodes and a plurality of links). Fig. 4 discloses a routing table, which contains information for where the optimum routes are stored. See also col. 6, lines 6-16. Fig. 3 discloses a flow chart of the path computation procedure (generating at least one path cost data set). See also col. 5, lines 53-67, and col. 6, lines 1-6. After computation of optimal paths is complete, the optimal path from the predefined source node to the predefined destination node will be retrieved from the routing table at the table entry corresponding to the destination node (a minimum-hop path and a minimum-cost path can be determined from at the path cost data set). See col. 6, lines 6-16. The optimal path must fit two criteria in order to be considered the widest shortest path. First, the path must have the lowest symmetric restrictive cost, where restrictive cost refers to available bandwidth

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(minimum cost path having a minimum cost). See col. 2, lines 27-28, and col. 11, lines 3-5.

Second, the optimal path must also have the lowest additive cost, where having the lowest additive cost includes having the minimal hop count (a minimum hop path represents a minimum number of hops). See col. 11, lines 7-11.

4. Regarding claims 2, 3, 47, 48, 55, and 56, as mentioned previously, the optimal paths are stored in the routing table and later retrieved to determine the minimum-hop/minimum-cost path (storing path cost data in a path storage area such that they can be accessed). See col. 6, lines 6-16. It is inherent that the path storage area is allocated if the method or system is to update the table with new values when a new optimal path is found (allocating path storage area in a data structure).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-8, 49-53, and 57-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Basso et al. in view of Busche (US 5,805,593) and in light of the rejections to claims 1, 46, and 54.

7. Regarding claims 4, 49, 57, 62, and 65, Basso et al. discloses that each routing table entry contains information on both restrictive cost and additive costs, where additive costs includes hop count information. See Fig. 4 for an illustration of the entry. Neither Basso et al. nor

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Busche expressly discloses having the table arranged so that columns correspond to a given hop count and rows correspond to the nodes; however, Busche discloses a table that is sorted by hop count, where the hop count is organized by row. Fig. 2 and col. 4, lines 12-16 show a simplified example of a table. It would have been obvious to a person of ordinary skill in the art at the time of the invention to interchange the column and rows in Busche so that the columns represented hop count and to use such a table setup in organizing the entries shown Fig. 4 of Basso et al..

One would have been motivated to do this because organizing by hop count, as opposed to source node/destination node, would allow the system to find the links with the shortest hop that exists between the present node and another node by simply looking at the first few columns and not having to traverse the whole table. This would allow for faster processing of this kind of information.

8. Regarding claims 5, 50, 58, and 66, neither Basso et al. nor Bucsche expressly discloses traversing the rows and storing path information representing a minimum-hop path, but it would have been obvious to a person of ordinary skill in the art at the time of the invention to traverse the rows to find minimum-hop path information. One of ordinary skill in the art would have been motivated to do this because if the columns were not sorted in increasing number of hops, then one would want to traverse the entire row before making the determination as to which entry has the minimum number of hops.

9. Regarding claims 7, 52, 60, 63, and 67, neither Basso et al. nor Busche expressly discloses identifying a minimum cost column, but it would have been obvious to a person of ordinary skill in the art at the time of the invention to use the restrictive cost information to find a

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minimum cost column. One of ordinary skill in the art would have been motivated to do this because identifying a minimum cost column would reduce the costs incurred on the system.

10. Regarding claims 6, 8, 51, 53, 59, 61, 67, and 69, neither Basso et al. nor Busche expressly discloses where the first column corresponds to the root node. However, it would have been obvious to make the first column of the array created by the combination of Basso et al. and Busche to have the first column correspond to the root node. One would have been motivated to do this because this would be an efficient way of keeping track of how many connections contained zero hops.

11. Regarding claim 64, it is inherent that storage area in memory must be allocated before data can be stored and subsequently accessed.

#### ***Response to Arguments***

12. Applicant's arguments filed January 12, 2004 have been fully considered but they are not persuasive.

13. In response to Applicant's argument that Basso et al. teaches away from finding a "minimum-cost path," the Examiner respectfully disagrees. Applicant contends that "widest" as defined in Basso et al. equates to "highest bandwidth" and cites col. 2, lines 43-50 as evidence. This argument, however, is not valid because Applicant has misunderstood the meaning of "widest path." In col. 11, lines 4-7, Basso et al. states the following to clarify the meaning of widest path: "...the widest path, that is, the path that has the lowest symmetric restrictive costs..." Thus, Basso et al. explicitly defines the meaning of "widest path" as being the path that has the lowest restrictive costs, where restrictive cost means available bandwidth. See col. 2, lines 27-28 for a definition of restrictive cost. Contrary to Applicant's interpretation of "widest

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path” meaning the path with the “highest bandwidth,” the term “widest path” actually means “lowest bandwidth.” Following Applicant’s reasoning provided on page 22 of Applicant’s response that a “higher bandwidth is typically associated with higher... costs,” a lower bandwidth should then be associated with lower costs. Because Basso et al. explicitly defines “widest path” to mean lowest cost, the Examiner believes that Basso et al. does teach finding a “minimum-cost path,” and the rejection is proper.

14. In response to Applicant’s argument that Basso et al. does not teach a cost parameter separate from the hop parameter, the Examiner respectfully disagrees. As summarized in Basso et al. in col. 11, lines 3-13, the “widest shortest path” must meet two criteria. First, as discussed previously, the path must have the lowest restrictive cost, where restrictive cost refers to available bandwidth—this parameter can be equated to minimum-cost. Second, the path must have the lowest additive costs, where additive cost includes having the minimal hop count. Cost, as referring to quality of service or bandwidth, is separate from hop count. The Examiner acknowledges that there was some confusion in how these terms were addressed previously, but with this explanation, it should be clear that Basso et al. treats cost and hop count as two distinct path characteristics, and the rejection is proper.

15. In response to Applicant’s argument there was insufficient motivation to combine Basso et al. and Busche, the Examiner has modified the rejection in order to provide a more sufficient motivation. Instead of just contending that the arrangement provides an alternate way of organizing the information, the Examiner now contends that the table arrangement provided by the combination of Busche and Basso et al. provides a more efficient way of organizing the path data.

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16. In response to Applicant's argument that Busche does not teach generating or accessing at least one path cost data set, the Examiner relies on the teachings from Basso et al.. As described in the 102 rejection, Basso et al. discloses determining if a proposed path has a lower restrictive cost and lower additive cost than the path already stored in memory. See at least col. 9, lines 11-27 for the process of generating, accessing, and storing path information. Thus, it is the teachings from Basso et al. that are relied upon to show generation and accession of path data from memory.

17. In response to Applicant's argument that Busche does not disclose a path cost, the Examiner relies on Basso et al. for this teaching. As described in the rejection, each entry from Basso et al. contains both restrictive cost and additive cost information. Restrictive cost corresponds to the "cost" as described in the claims of the application. Thus, Basso et al. discloses that this information exists, and the combination of Basso et al. and Busche would allow this information to be stored in a table.

***Allowable Subject Matter***

18. Claims 10-35 and 37-45 allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The examiner can normally be reached on M-F, 9-5.




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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703)305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLL  
Timothy Lee  
March 8, 2004



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